# *MOXIDECTIN*
# *"Anti-parasitic"*

Presented by

Dr. Bill Clymer

Livestock Parasitologist

Fort Dodge Animal Health

Amarillo, Texas

# *ANTIBIOTIC*

The medically and regulatory-accepted definition of an **ANTIBIOTIC** is an agent with antimicrobial or antibacterial activity.

Moxidectin has antiparasitic (helminth & insect) activity, but not antimicrobial activity and therefore is not an antibiotic.

# *Structure of a compound is not a predictor of its activity*

Example is provided: Erythromycin-a macrolide antibiotic, is antibacterial, not an anthelmintic. It also works via an entirely different mechanism of action. Therefore, classifying molecules in a class due to common structure is inappropriate and misleading.

*C. Adams, Sr. ed., Food and Drug Dictionary, Official Regulatory Terms, Government Institutes Research Group, ABS Consulting, Page 28 (2003).*

From the preface of this book: ..”It is important to keep in mind that this dictionary is not just a collection of absolute definitions but is also a resource to identify basic regulatory concepts. There may be other meanings for many of the terms, but the definitions included in this dictionary reflect use of the term is a specific regulatory or statutory context. Each term carries a citation to place the term in that context for the reader…”

# ANTIBIOITIC DRUG

Any drug composed wholly or partly of any kind of penicillin, streptomycin, chlortetracycline, chloramphenicol, bacitracin or any other drug intended for human use containing any quantity of any chemical substance which is produced by a micro-organism and which has the capacity to inhibit or destroy micro-organisms in dilute solution or any derivative thereof.
[FFDCA:Sec.201, FDAMA:Sec. 125]

*Moxidectin or F-alpha was tested for antibacterial activity and was found to have none.*

Antibiotic clearly refers to antimicrobial or antibacterial activity and is separate from antiparasitics (anthelmintics).

# *ANTHELMINTIC* *(Ibid., pg 28)*

An agent that is destructive to worms [21 CFR 357.103]

*Goodman and Gilman, eds., The Pharmacologic Basis of Therapeutics, 8th ed. Section XI. Chemotherapy of Microbial Diseases. Chapter 44. Antimicrobial Agents, General Considerations. pp. 1018-1019.*

{Dr. Gilman won the Nobel Prize for Medicine in the mid 90s}

"Antibiotics are chemical substances produced by various species of microorganisms (bacteria, fungi, actinomycetes) that **suppress the growth of other microorganisms and may eventually destroy them."**

# *Ibid., p. 1019*

"When antibiotics are used to treat an infection, a favorable therapeutic outcome is influenced by numerous factors. However in simple terms, success is dependent on achieving a level of anti-bacterial activity at the site of infection that is sufficient to inhibit the bacteria that tips the balance in favor of the host…"

# Erythromycin Mechanism of Action:

Erythromycin and other macrolide antibiotics inhibit protein synthesis by binding reversibly to 50 S ribosomal subunits of sensitive microorganisms (Brisson-Noel et al., 1988). Erythromycin and moxidectin are in the same structural class. However, Erythromycin is an antibiotic and moxidectin is an anti-parasitic. They have a different mechanism of action and target. The structural properties of any compound are not predictive of activity or mode of action. Moxidectin was tested for antibacterial activity and was found to have none.

# *Moxidectin*
# *Cydectin Pour-On®*

1. Endectocide (internal and external parasites)
2. Broad spectrum and highly efficacious
3. Zero meat and milk withdrawl
4. Environmentally Friendly-kind to non-target organisms (dung beetles)
5. Rain-proof, loss of less than 1% after exposure to two inches or rain per hour
6. Non-flammable

# *"Other means of parasite control"*

- 37 years as Entomologist/Parasitologist, including 6+ years as extension specialist for TAMU & 23 years as consultant and contract researcher
- Tested "almost" everything that was supposed to effectively control parasites, unfortunately, many products on the market are not very effective and often give a false sense of security to producers with livestock at risk to parasites.

# THANKS FOR YOUR TIME